

SCA Notes

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1. Required Single Ended SCA signals (14 total)

WA[7..0]	write addresses
Wclk	write clock (40MHz)
RDclk	read clock (8MHz ?)
SD	serial read address
RD	read strobe
G0	channel select
G1	channel select

2. Control Parameters

- Trigger delay time
- Number of time samples
- Select SCA address, and pre-load user defined usable addresses

3. SCA Controller Functions

- Provide R/W addresses for SCA
- Write Address: 8-bit parallel @ 40MHz
- Read Address: Serial, read cycle requires 15 read clock cycles to readout 12 channels of one time sample. Additional cycles are for settling time at start, and additional reset time for output amplifier.

Max readout trigger rate is 100KHz = 10us.

N-samples	Readout time RDclk=5MHz (200ns)	Readout time RDclk=6.67MHz (150ns)	Readout time RDclk=8MHz (125ns)
4	12us	9us	7.5us
5	15us	11.25us	9.375us
6	18us	13.5us	11.25us

Table 1

- Grey coding cells (0-141), cells (141-143) have their own code with only one bit changing.
- Monotonic sequencing: Order write addresses sequentially before Grey Coding.
- Error Register: ex. No available write addresses.
- Remove SCA address: remove available addresses.

4. Output Information

- Addresses: Inject capacitor address of each time sample into data stream for each trigger.
- Bunch-Crossing: Inject bunch-crossing number into data stream.